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REMARKS

Claims 1-11 and 26-37 are all the claims presently pending in the application. Claims 1, 7, 9-10 and 37 have been amended to more particularly define the claimed invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 1, 2, 4, 33 and 35 stand rejected under 35 U. S. C. §102(b) as allegedly unpatentable over Juestel et al. (JP Pub. 2002-223008). Claim 37 stands rejected under 35 U. S. C. §102(b) as allegedly unpatentable over Lowery (U. S. Patent No. 5,959,316). Claims 3, 5, 6, 7 and 9-11 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Roberts et al. (U. S. Patent No. 6,335,548).

Claim 8 stands rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel and Roberts and further in view of Mueller et al. (U. S. Patent No. 6,417,019). Claims 26 and 36 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Lowery. Claims 27-32 stand rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Chen (U. S. Patent No. 6,531,328). Claim 34 stands rejected under 35 U. S. C. §103(a) as allegedly unpatentable over Juestel in view of Keller (U. S. Patent Pub. No. 1004/0012027).

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as recited, for example, in claim 1) is directed to a light emitting apparatus which includes a semiconductor light emitting element that emits light with a predetermined wavelength; a light-transmitting portion that includes a recess, the semiconductor light emitting element being inserted into the recess to house the semiconductor light emitting element (Application at Figure 5B; page 12, lines 26-

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28), the light-transmitting portion including a light-transmitting material and the recess being formed with a predetermined size provided by molding the light-transmitting material, and a phosphor layer portion that is thinly formed along the surface of the recess, the phosphor layer portion including a phosphor to be excited by irradiating light emitted from the semiconductor light emitting element.

A conventional apparatus (e.g., see Application at Figure 4A) may include a light emitting diode (LED) 60 integrally formed with light source 62, and a lens element 72. However, since in such an apparatus the light source 62 and lens element 72 are positioned using posts 70, 71 and recesses 62A, 62B (Application at Figure 4B), it is difficult to adjust the positioning precision of the light source 62 and lens element 72. (Application at page 5, lines 1-5).

The claimed invention, on the other hand, includes a light-transmitting portion that includes a recess, the semiconductor light emitting element being inserted into the recess to house the semiconductor light emitting element (Application at Figure 5B; page 12, lines 26-28). This may help to precisely position the light emitting element with respect to the phosphor layer portion that is thinly formed along the surface of the recess (Application at page 15, lines 4-11).

II. THE ALLEGED PRIOR ART REFERENCES

A. Juestel

The Examiner alleges that Juestel teaches the invention of claims 1, 2 and 4. Applicant would submit, however, that there are features of the claimed invention that are not taught or suggested by Juestel.

Juestel discloses a light emitting element which is intended to have an improved lifetime. The light emitting element includes a light emitting diode (LED) 3 and a fluorescence layer 2 having a water-resistant coating (Juestel at Abstract).

However, Applicant would submit that Juestel does not teach or suggest a light-transmitting portion that includes a recess, *"a light-transmitting portion that includes a recess, said semiconductor light emitting element being inserted into said recess to house the semiconductor light emitting element"*, as recited in claim 1. As noted above,

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in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer portion that is thinly formed along the surface of the recess (Application at page 15, lines 4-11).

Clearly, Juestel does not teach or suggest this novel feature. Indeed, Juestel merely teaches that the LED 3 is "protected by the epoxy housing" (Juestel at [0052], [0054]) and a fluorescence layer 2 is coated on the LED 3 (or on the epoxy housing 6) (Juestel at [0024]). That is, **nowhere does Juestel teach or suggest inserting the LED 3 into the epoxy housing 6.**

In fact, one of ordinary skill in the art would likely understand Juestel to teach forming the housing 6 using a conventional method of depositing a liquid epoxy on the LED 3 and curing the liquid epoxy to form the housing 6. However, this provides a **completely different result** from the claimed invention in which the semiconductor light emitting element is **inserted into the recess** to house the semiconductor light emitting element.

Indeed, by inserting the light emitting element into the recess, the position of the light emitting element with respect to the phosphor layer portion may be adjusted. However, in Juestel, the position of the LED 3 is necessarily fixed with respect to the fluorescence layer 2.

Further, even assuming (arguendo) that the housing 6 includes a "recess" as alleged by the Examiner, the LED 3 is never "inserted into" the "recess". Instead, the liquid epoxy material is deposited over the LED 3. Clearly, the liquid epoxy could not be considered to include a "recess". Indeed, a "recess" may be considered to have a shape, and a liquid epoxy clearly can have no "shape", but takes the shape of the container which contains the epoxy.

Thus, the alleged "recess" in Juestel is not formed **until after the liquid epoxy has cured** to form the epoxy housing 6 over the LED 3. However, at this point the position of the LED 3 is fixed with respect to the epoxy housing 6. Thus, the LED 3 is never inserted into a recess in the epoxy housing 6 in Juestel.

Therefore, Applicant would submit that there are features of the claimed invention that are not taught or suggested by Juestel. Therefore, the Examiner is

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respectfully requested to withdraw this rejection.

B. Lowery

The Examiner alleges that Lowery teaches the invention of claim 37, and that Lowery would have been combined with Juestel to form the invention of claims 26 and 36. Applicant would submit, however, that these references would not have been combined and even if combined, the alleged combination would not teach or suggest each and every element of the claimed invention.

Lowery discloses a device including an LED 18, a transparent spacer 50 deposited on the LED 18 and cured (Lowery at col. 3, lines 7-9), a fluorescent material 52 deposited on the spacer 50 and cured, and the "entire assembly is embedded in a transparent encapsulation epoxy resin 26 (Lowery at Figure 1).

However, Applicant respectfully submits that Juestel and Lowery are unrelated. Indeed, Juestel is intended to waterproof a fluorescence layer in a light emitting element, whereas Lowery is intended to provide more uniform lighting by using a transparent spacer. No person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, Applicant would submit that neither Justel, nor Lowery, nor any alleged combination thereof teaches or suggests "a light-transmitting portion that includes a recess, said semiconductor light emitting element being inserted into said recess to house the semiconductor light emitting element", as recited in claim 1, nor "positioning the light-transmitting portion adjacent to the electrode such that said semiconductor light emitting element is inserted into said recess", as recited in claim 7, nor "a molded lens comprising a recessed portion which has a predetermined size, said

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light emitting element being inserted into said recessed portion such that said molded lens is formed over said light emitting element", as recited in claim 37. As noted above, in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer formed on the surface of the recessed portion (Application at page 15, lines 4-11).

Clearly, this feature is not taught or suggested by Lowery. Indeed, the Examiner attempts to equate the transparent encapsulation epoxy resin 26 with the molded lens of the claimed invention. This is clearly incorrect.

In fact, as noted above, Lowery teaches that the transparent encapsulation epoxy resin 26 is "deposited" (e.g., see Lowery at col. 3, lines 38-39). That is, like Juestel, Lowery teaches forming the transparent encapsulation epoxy resin 26 using a conventional method of depositing a liquid epoxy on the LED 18 and curing the liquid epoxy to form the resin 26. However, as noted above, this provides a **completely different result** from the claimed invention in which the semiconductor light emitting element is **inserted into the recessed portion**.

Indeed, by inserting the light emitting element into the recessed portion, the position of the light emitting element with respect to the phosphor layer may be adjusted. However, in Lowery, the position of the LED is necessarily fixed with respect to the fluorescence layer.

Further, as in Juestel, in Lowery, the alleged "recess" is not formed until after the liquid epoxy has cured to form the encapsulation epoxy resin 26 over the LED 18. However, at this point the position of the LED 18 is fixed with respect to the encapsulation epoxy resin 26. Thus, the LED 18 is **never inserted into a recess** in the encapsulation epoxy resin 26.

Therefore, Lowery clearly does not make up for the deficiencies in Juestel.

Therefore, Applicant would submit that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

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C. Roberts, Mueller, Chen and Keller

The Examiner alleges that Juestel would have been combined with Roberts to form the claimed invention of claims 3, 5, 6, 7 and 9-11, that Juestel would have been combined with Roberts and Mueller to form the invention of claim 8, that Juestel would have been combined with Chen to form the invention of claims 27-32, and that Juestel would have been combined with Keller to form the invention of claim 34. Applicant would submit, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention.

Roberts is directed to a semiconductor radiator emitter package, in which a radiation emitter 202 (e.g., LED chip) is mounted on lead frame 201 (Roberts at col. 26, lines 18-29).

Mueller discloses a method of fabricating a light emitting device which includes a phosphor layer 37 deposited on a light emitting diode 8 (Mueller at Abstract).

Chen discloses a packaging substrate including a packaging material 8, an LED chip 3 and an encapsulating resin 5 (Chen at Figure 14; col. 5, lines 1-45).

Keller discloses a solid state emitter package and a phosphor including cerium-doped yttrium aluminum garnet (Ce:YAG) (Keller at [0008]).

However, Applicant respectfully submits that these references are unrelated. Indeed, in contrast to Juestel, Roberts is directed to a radiation emitter package, Mueller is intended to provide a light emitting device having an improved phosphor layer, Chen is intended to improve performance by using a silicon wafer as a packaging substrate, and Keller is intended to improve an emitter package by using a conversion material which absorbs substantially all of the light emitted from an emitter. No person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

In fact, Applicant submits that the references provide no motivation or suggestion to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so

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motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, Applicant would submit that neither Juestel, nor Roberts, nor Mueller, nor Chen, nor Keller, nor any alleged combination thereof teaches or suggests *"a light-transmitting portion that includes a recess, said semiconductor light emitting element being inserted into said recess to house the semiconductor light emitting element",* as recited in claim 1, nor *"positioning the light-transmitting portion adjacent to the electrode such that said semiconductor light emitting element is inserted into said recess",* as recited in claim 7. As noted above, in an exemplary aspect of the claimed invention, this feature may help to precisely position the light emitting element with respect to the phosphor layer portion formed on the surface of the recess (Application at page 15, lines 4-11).

Clearly, Roberts does not teach or suggest this novel feature. Indeed, the Examiner attempts to rely on Figure 19 and columns 20 and 29-30 to support his position. However, this is clearly unreasonable.

In fact, Figures 19A and 19B merely illustrate and columns 29-30 merely discuss a device having a lens 401 formed on dies 1909, 1910, 1911 above a cup 301. The Examiner attempts to equate the dies 1909, 1910, 1911 with the light emitting element of the claimed invention. However, **nowhere in this passage or anywhere else for that matter, does Roberts teach or suggest that the dies 1909, 1910, 1911 are inserted into a recess of a light transmitting portion.**

The Examiner also appears to attempt to equate the lens 401 in Roberts with the light transmitting portion of the claimed invention. However, nowhere does Roberts teach or suggest that the lens 401 in Roberts includes a recess. In fact, Roberts merely states that the lens 401 is "formed directly above the cup 301" (Roberts at col. 30, lines 30-31) and describes a preferred curvature of the lens 401 (Roberts at col. 32, line 53-col. 33, line 6. Therefore, Roberts clearly does not make up for the deficiencies of Juestel.

Likewise, Mueller does not teach or suggest these novel features. Indeed, the Examiner attempts to rely on col. 7, lines 19-20 to support his position. However, this

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is clearly unreasonable.

In fact, col. 7, lines 19-20 in Mueller merely discusses methods of depositing a phosphor layer. Specifically, Mueller teaches depositing a phosphor layer 37 directly on the LED 8. Nowhere does Mueller even teach or suggest forming a light-transmitting portion with a recess for housing the LED 8.

Thus, Mueller certainly does not teach or suggest a light-transmitting portion which includes a recess, or a light emitting element inserted into such recess. Therefore, Mueller clearly does not make up for the deficiencies of Juestel and Roberts.

Likewise, this feature is clearly not taught or suggested by Chen. Indeed, the Examiner attempts to equate the LED chip 3 in Chen with the light emitting element of the claimed invention. However, nowhere does Chen teach or suggest that the LED chip 3 is inserted into a recess in a light transmitting portion. Therefore, Chen clearly does not make up for the deficiencies in Juestel.

Likewise, Keller does not teach or suggest these novel features. Indeed, Keller simply discloses that a protective epoxy layer is filled into the cup 18 of the package 10 such that the LED 12 is covered, and then the epoxy is cured (Keller at [0033]). That is, nowhere does Keller teach or suggest that the LED 12 is inserted into a recess in a light transmitting portion. Therefore, Keller clearly does not make up for the deficiencies in Juestel.

Therefore, Applicant would submit that these references would not have been combined and even if combined, the combination would not teach or suggest each and every feature of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection..

III. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-11 and 26-37, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for

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allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 9/20/06



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CERTIFICATE OF FACSIMILE TRANSMISSION

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner Andrew Owens Arena Group Art Unit # 2811 at fax number (571) 273-8300 this 20th day of September, 2006.



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